

# UPPER EXTREMITY PROSTHETICS

CURRENT STATUS  
&  
EVALUATION



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## CURRENT STATUS & EVALUATION

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## PREFACE

In writing my PhD-thesis 'A sizzling hand prosthesis. On the design and development of a pneumatically powered hand prosthesis for children' [Plettenburg, 2002a], it was thought to be appropriate to include a chapter on the current state of the art in upper extremity prosthetics. When finished, this chapter turned out to be a book on its own. Although being illustrative and informative within the scope of the thesis, it was decided to separate this chapter from the actual thesis, and publish it as a separate book.

The book contains three chapters. The objective of the first chapter, entitled Current Status in Upper Extremity Prostheses, is to familiarize the reader with the world of upper extremity prosthetics. This chapter reviews the prostheses presently available, their means of control and their sources of power. The second chapter, Evaluation, investigates the actual use of prostheses. In general the use of prostheses is cumbersome. The reasons for this are explored. Also some basic requirements needed to achieve better prostheses are presented in this chapter. From these basic requirements pathways for future research are derived. The third chapter, Discussion, Conclusions & Recommendations, concludes the book.

I am very indebted to my thesis supervisor Prof.dr.ir. Henk Stassen and my adjunct thesis supervisor Ir. Peter Pisticky for their valuable comments in proofreading this book. Likewise I am grateful to the other members of my thesis examination committee, Prof.dr. Hans Arendzen, Prof. Dr.med. René Baumgartner, Prof.ir. Adriaan Beukers, Prof. Dudley Childress Ph.D., Prof.dr. Frans van der Helm, and Prof.dr.ir. Peter Wieringa, for devoting their time, not only to review my thesis, but the manuscript of this book as well.

Dick H. Plettenburg  
March 2002

## **PREFACE to this edition**

As a result of the continuous interest in the book 'Upper Extremity Prosthetics. Current Status Evaluation', an annex to my PhD-thesis, it was decided to make an updated version widely available. The new edition now contains four chapters: Chapter 1, Prostheses in Historical Perspective, was added to set an historical perspective. The other three chapters are updated with the newest developments within the field.

I hope this book will offer something for anyone interested in upper extremity prostheses. I am interested in any comments or remarks the readers and users may come up with after reading this book. Please refer them to the publisher; it may help improve future editions.

Dick H. Plettenburg  
October 2006

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